

**Preliminary Amendment of U.S. National Stage for International Application  
PCT/EP2003/013143 Filed November 22, 2003**

**In the Claims:**

Please cancel claims 1-18, without prejudice, and add new claims 19-38 in accordance with the following complete listing of all claims ever presented. This listing of claims replaces all prior versions, and listings, of the claims in the instant application:

**Listing of Claims:**

Claims 1-18 (Canceled)

Claim 19 (New): A process for the enzymatic synthesis of esters of flavonoids and flavonoid derivatives, comprising the steps of

- a) forming a reaction medium containing an organic solvent, a glycosylated flavonoid, aglycon flavonoid or flavonoid derivative, an acyl group donor, and an enzymatic catalyst under conditions in which the concentration of water is below 150 mM prior to the start of the reaction,
- b) removing water and alcohol, if any, formed during the course of the reaction in order to maintain their concentration below 150 mM, and
- c) separating the obtained flavonoid ester from the other reaction medium components.

Claim 20 (New): A process according to claim 19, wherein the concentration of water in step a) is below 100 mM and the concentration of water and alcohol in step b) is maintained below 100 mM.

Claim 21 (New): A process according to claim 19, further comprising adjusting the molar ratio of flavonoid to acyl donor in the reaction medium so that it is in the range from 0.01 to 20.00 during the reaction.

Claim 22 (New): A process according to claim 19, further comprising adjusting the molar ratio of flavonoid to acyl donor in the reaction medium so that it is in the range from 0.02 to 10.00 during the reaction.

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Claim 23 (New): A process according to claim 19, further comprising continuously or periodically adding to the reaction medium during the course of the reaction further quantities of at least one constituent of the reaction medium.

Claim 24 (New): A process according to claim 19, further comprising continuously or periodically removing at least one constituent of the reaction medium and, after fractionation, returning it to the reaction medium.

Claim 25 (New): A process according to claim 24, wherein the entire reaction medium is periodically or continuously removed during the reaction and, after fractionation, one or more constituents of the medium removed are re-injected into the reactor.

Claim 26 (New): A process according to claim 19, wherein, during the reaction, the temperature is adjusted to 20 to 100°C, the partial pressure over the reaction medium is adjusted to 10 mbar to 1,000 mbar and the reaction medium is stirred.

Claim 27 (New): A process according to claim 19, wherein, residual flavonoids or residual acyl donor are separated from the obtained flavonoid esters by extraction with organic solvents or supercritical fluids, by distillation, by crystallization, by adsorption or by precipitation.

Claim 28 (New): A process according to claim 19, further comprising fractionating the obtained flavonoid esters by precipitation or chromatography.

Claim 29 (New): A process according to claim 19, wherein the flavonoid is selected from the group consisting of chalcone, flavone, flavanol, flavanone, anthocyan, flavanol, coumarin, isoflavone and xanthone.

Claim 30 (New): A process according to claim 19, wherein the acyl donor is selected from the group consisting of a linear or branched, saturated, unsaturated or cyclic aliphatic acids containing up to 22 carbon atoms and optionally substituted by one or more substituents selected

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from the group consisting of hydroxyl, amino, mercapto, halogen and alkyl-S,S-alkyl, linear or branched, saturated or unsaturated aliphatic diacids containing up to 22 carbon atoms, a cinnamic acid optionally substituted by one or more substituents selected from the group consisting of hydroxyl, nitro, alkyl, alkoxy and halogen atoms, and a benzoic acid optionally substituted by one or more substituents selected from the group consisting of hydroxyl, nitro, alkyl, alkoxy and halogen atoms, or methyl, ethyl, propyl or butyl esters thereof.

Claim 31 (New): A process according to claim 19, wherein the acyl donor is selected from the group consisting of palmitic acid, 16-hydroxyhexadecanoic acid, 12-hydroxystearic acid, 11-mercaptopundecanoic acid, thiooctanoic acid, china acid, 3,4-dihydroxycinnamic acid, 4-hydroxy-3-methoxycinnamic acid or 4-hydroxycinnamic acid.

Claim 32 (New): A process according to claim 19, wherein the acyl donor is selected from the group consisting of hexadecane diacid or azelaic acid, an arylaliphatic acid and a dimeric acid derived therefrom.

Claim 33 (New): A process according to claim 19, wherein the organic solvent is selected from the group consisting of propan-2-ol, butan-2-ol, isobutanol, acetone, propanone, butanone, pentan-2-one, ethane-1,2-diol, butane-2,3-diol, dioxan, acetonitrile, 2-methylbutan-2-ol, tert.butanol, 2-methylpropanol and 4-hydroxy-2-methylpentanone, aliphatic hydrocarbons, and mixtures of at least two of these components.

Claim 34 (New): A process according to claim 19, wherein the organic solvent is the acyl donor.

Claim 35 (New): A process according to claim 19, wherein the enzymatic catalyst comprises an immobilized protease, lipase or a combination thereof.

Claim 36 (New): A process according to claim 19, wherein the enzymatic catalyst is selected from the group consisting of *Candida antarctica*, *Rhizomucor miehei*, *Candida cylindracea*, *Rhizopus arrhizus* or a combination thereof.

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Claim 37 (New): A process according to claim 19, wherein the water and the alcohol are removed from the medium by molecular sieves.

Claim 38 (New): A process according to claim 19, wherein the water and the alcohol are removed from the reaction medium by pervaporation.